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Ballard Spahr LLP SUITE 1000 999 PEACHTREE STREET ATLANTA, GA 30309-3915			LEE, GENE W	
			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/593,833	<b>Applicant(s)</b> PATEL, SANJAY	
	<b>Examiner</b> Gene W. Lee	<b>Art Unit</b> 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-58 is/are pending in the application.
- 5a) Of the above claim(s) 35-58 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-34 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 23 August 2011 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>14 June 2011</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 7-14 are rejected** under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation “greater than the number of key presses” in step (ii). The specification discloses features related to this limitation in paragraphs 18 and 152. However, the language of the limitation in claim 7 could refer either to the previous limitation “number of key presses required to create a given data string” in claims 1 and 5, or to a new limitation of a number of key presses. Therefore it is suggested that the limitation in claim 7 be amended to state “greater than a number of key presses” in order to maintain consistency with the written description and avoid the addition of new matter.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. **Claims 1-6, 15-20 and 22-29 are rejected** under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,818,437 (Grover).

5. Regarding claim 1, Grover teaches an interface system for a personal computer comprising an array of data input keys having multi- character indicia (Fig. 1 at 202), said interface system further comprising: data storage means; data processing means; and data display means (Abstract; Fig. 1), wherein the data processing means is adapted to facilitate a reduction in the number of key presses required to create a given data string to less than the number of characters within said data string (Abstract) by: (i) filtering data stored within the data storage means by initial character, as determined by the character or characters ascribed to a data input key initially pressed by a user (col. 7 lines 46-52); (ii) prioritizing said filtered data in real- time according to user-configurable prioritization parameters (col. 8 lines 37-40); and (iii) displaying one or more prioritized data strings on the data display means for subsequent selection by the user (col. 12, lines 6-9); wherein the data storage means is defined by one or more data dictionaries each holding probability information relating to a given data string's historical usage, the probability information being based on statistical derivatives of language and user traits (col. 7 line 46-col. 8 line 43).

6. Regarding claim 2, Grover teaches wherein successive key presses act to filter further the number of data strings displayed on the data display means for subsequent selection by the user (Abstract).

7. Regarding claim 3, Grover teaches wherein the data input keys within the array have multi-character indicia which are selected to accord with a statistical extrapolation

of the most used alphanumeric character combinations in a given language, to thus facilitate a further reduction in the number of key presses required to create a given data string (Fig. 1 at 202).

8. Regarding claim 4, Grover teaches wherein the data input keys having multicharacter indicia are composite keys having at least primary and secondary indicia corresponding to primary and secondary key-values or key-functions (Fig. 1 at 202).

9. Regarding claim 5, Grover teaches wherein the data storage means is defined by one or more data dictionaries in which qualitative and/or quantitative information is stored in relation to each data string (col. 7 lines 46-50).

10. Regarding claim 6, Grover teaches wherein a configuration means is provided to allow a user to selectively enable or disable physical interactivity reduction characteristics of the interface system which facilitate a further reduction in the number of key presses required to create a given data string (col. 10 lines 29-36).

11. Regarding claim 15, Grover teaches wherein the configuration means also allows a user to selectively adjust the prioritization parameters according to the desired qualitative and/or quantitative characteristics of the data stored within the, or each, data dictionary (col. 7 line 46-col. 8 line 43).

12. Regarding claim 16, Grover teaches wherein the qualitative and/or quantitative information comprises statistical and/or probability information relating to each data string stored within the data storage means (col. 7 line 46-col. 8 line 43)..

13. Regarding claim 17, Grover teaches wherein all qualitative and quantitative information is dynamically updated in real-time (col. 7 line 46-col. 8 line 43).

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14. Regarding claim 18, Grover teaches wherein the data processing means maintains lookup chains between two or more data dictionaries such that a given data string in a first data dictionary is mapped to a data string or strings in one or more other data dictionaries for selection by the user (col. 7 lines 46-60).

15. Regarding claim 19, Grover teaches wherein where a given data string in a first data dictionary is mapped to a plurality of data strings in one or more other data dictionaries, said data strings are prioritized via the configuration means for ease of selection by the user (col. 7, lines 46-67).

16. Regarding claim 20, Grover teaches wherein the mapping is performed dynamically (col. 7 lines 46-60).

17. Regarding claim 22, Grover teaches wherein the data processing means maintains associative links between any given data string and up to n other data strings to thus display or project the most relevant longer data string comprised of n+1 data strings for selection by the user (col. 7 line 61-col. 8 line 30).

18. Regarding claim 23, Grover teaches wherein a plurality of the most relevant longer data strings are made available or displayed in a prioritized list for selection by the user (col. 8 lines 13-23).

19. Regarding claim 24, Grover teaches wherein selection of a longer data string induces a repetition of associative linking such that a further one or more relevant longer data strings are displayed for selection by the user (col. 8 lines 13-23).

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20. Regarding claim 25, Grover teaches wherein the relevance/prioritization of the, or each, longer data string is determined according to statistical and/or probability information stored within the, or each, data dictionary (col. 8 lines 36-43).

21. Regarding claim 26, Grover teaches wherein statistical information relates to the historical inputting and/or selection of data strings (col. 8 lines 36-43).

22. Regarding claim 27, Grover teaches wherein the historical inputting and/or selection information can be one or more of the following: (i) frequency of inputting; (ii) frequency of selection (iii) character length; (iv) lexical pattern density; and (v) chronological weighting (col. 8 lines 36-43).

23. Regarding claim 28, Grover teaches wherein probability information can be one or more of the following: (i) occurrence and/or association ratios of two or more data strings within a longer data string; (ii) context ratios determining the likelihood of a given data string being grouped with one or more other data strings to determine the context of a longer data string (col. 7 lines 46-60).

24. Regarding claim 29, Grover teaches wherein the one or more data strings displayed on the data display means for subsequent selection by the user are displayed in list format in descending order of priority (col. 8 lines 36-43).

### ***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. **Claims 7, 8, 10, and 12-14 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover as applied to claim 6 above, and further in view of U.S. Patent Publication No. 2004/0169635 (Ghassabian) and U.S. Patent No. 5,829,000 (Huang).

27. Regarding claim 7, Grover further teaches wherein the physical interactivity reduction characteristics are selectable from a group (col. 5 line 65; col. 7 line 41-44 (indicating that it is desirable to present the user with different method options); entering a space after selection of a data string (col. 7 lines 7-16); the limitation of displayed data strings to those having a total number of characters greater than a number of key presses (col. 8 lines 17-21 or col. 13, lines 3-19; Fig. 10 (e.g. length 2, length 3)); expanding typed or selected mnemonics into their corresponding full data strings (col. 5 lines 18-25); performing two-way translations between data strings and user-configurable dictionary definitions or descriptions (col. 7 line 46 – col. 8 line 43); enabling the selection from a list of different data strings stored within the data storage means by means of pressing a data input key, said data string having an initial letter or letters corresponding to the key-value of that key (col. 6 lines 17-32).

Meanwhile, Ghassabian teaches double-pressing a key ([9]) and one of ordinary skill in the art could apply the double press teaching of Ghassabian to the teaching of Grover of enabling the selection from a list of different data strings stored within the data storage means by means of pressing a data input key, said data string having an initial letter or letters corresponding to the key-value of that key (col. 6 lines 17-32). This is an application of a known technique to a known device to produce predictable results.



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Ghassabian also teaches enabling the selection of a secondary key- value or key-function by means of double- pressing a data input key ([9], [29]). One of ordinary skill in the art could apply the teaching of Ghassabian to that of Grover, as this is an application of a known technique to a known device to produce predictable results. Meanwhile, Huang teaches enabling the right-to-left and/or left-to- right deletion of n characters, words, sentences or paragraphs by means of a single key press (col. 4 lines 35-42). One of ordinary skill in the art could apply this teaching of Huang to that of Grover, as this is an application of a known technique to a known device to produce predictable results.

28. Regarding claim 8, Ghassabian teaches enabling the selection of a secondary key- value or key-function by means of double- pressing a data input key ([9], [29]).

Grover teaches using a shift key in combination with a key to select a secondary key value (col. 5 lines 1-17 or col. 7 lines 41-44). Therefore adding the teaching of Ghassabian to that of Grover means that the secondary value obtained by double pressing is identical to the shift value of the key. As explained above, this is an application of a known technique to a known device to produce predictable results.

29. Regarding claim 10, Grover further teaches wherein the secondary key value corresponds to secondary indicia of a composite key having multi-character indicia (Fig. 1 at 202).

30. Regarding claim 12, Grover further teaches wherein there is provided at least one function key operable in combination with a composite key and adapted to access the secondary key-value or key-function (col. 7 lines 41-44).

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31. Regarding claim 13, Grover further teaches wherein the data strings selectable from the list are actively prioritized within the data storage means according to user-definable quantitative and/or qualitative information (col. 7 line 61-col. 8 line 43).

32. Regarding claim 14, Grover further teaches wherein, the ability to select a different data string from the list is disabled upon pressing of a space key, or another non-character key (col. 5 lines 22-25).

33. **Claim 9 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover, Ghassabian, and Huang as applied to claim 7 above, and further in view of U.S. Patent No. 5,995,084 (Chan et al.).

34. Regarding claim 9, Chan teaches wherein each double-press must be completed within a predetermined period of time in order to select the secondary key-value or key-function (Claims 8, 17). Ghassabian teaches double-press, but not the explicit timing of the double press. Therefore, this is an application of a known technique to a known device to produce predictable results.

35. **Claim 11 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover, Ghassabian, and Huang as applied to claim 7 above, and further in view of U.S. Patent Publication No. 2003/0197736 (Murphy).

36. Regarding claim 11, Murphy teaches wherein the secondary key-value corresponds to a capitalized conventional key-value (Claim 37). Murphy also teaches wherein press and hold and double press are different options for accessing a secondary value ([60]), so the teaching of Murphy regarding capital key values would also apply to the secondary values achieved by double pressing as taught by

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Ghassabian. Therefore, these elements were known in the prior art, and one of ordinary skill in the art could have combined the elements as claimed by known methods, with the combination yielding predictable results to one of ordinary skill in the art.

37. **Claims 7, 8, 10, and 12-14 are rejected** in the alternative under 35

U.S.C. 103(a) as being unpatentable over Grover as applied to claim 6 above, and further in view of U.S. Patent Publication No. 2004/0169635 (Ghassabian), U.S. Patent No. 5,829,000 (Huang) and U.S. Patent No. 7,296,229 (Berstis).

38. Regarding claim 7, Grover further teaches wherein the physical interactivity reduction characteristics are selectable from a group (col. 5 line 65; col. 7 line 41-44 (indicating that it is desirable to present the user with different method options)); entering a space after selection of a data string (col. 7 lines 7-16); the limitation of displayed data strings to those having a total number of characters greater than a number of key presses (col. 8 lines 17-21 or col. 13, lines 3-19; Fig. 10 (e.g. length 2, length 3)); performing two-way translations between data strings and user-configurable dictionary definitions or descriptions (col. 7 line 46 – col. 8 line 43); enabling the selection from a list of different data strings stored within the data storage means by means of pressing a data input key, said data string having an initial letter or letters corresponding to the key-value of that key (col. 6 lines 17-32). Meanwhile, Ghassabian teaches double-pressing a key ([9]) and one of ordinary skill in the art could apply the double press teaching of Ghassabian to the teaching of Grover of enabling the selection from a list of different data strings stored within the data storage means by means of pressing a data input key, said data string having an initial letter or letters corresponding

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to the key-value of that key (col. 6 lines 17-32). This is an application of a known technique to a known device to produce predictable results. Ghassabian also teaches enabling the selection of a secondary key-value or key-function by means of double-pressing a data input key ([9], [29]). One of ordinary skill in the art could apply the teaching of Ghassabian to that of Grover, as this is an application of a known technique to a known device to produce predictable results. Meanwhile, Huang teaches enabling the right-to-left and/or left-to-right deletion of n characters, words, sentences or paragraphs by means of a single key press (col. 4 lines 35-42). One of ordinary skill in the art could apply this teaching of Huang to that of Grover, as this is an application of a known technique to a known device to produce predictable results. Meanwhile, Berstis teaches expanding typed or selected abbreviations or acronyms into their corresponding full data strings (col. 7, lines 38-55). Grover teaches expanding typed or selected mnemonics into their corresponding full data strings (col. 5 lines 18-25), therefore the suggestion would have been present to one of ordinary skill in the art to add the teaching of Berstis to that of Grover. The motivation would include to provide clarity and to reduce key strokes. In addition, these elements were known in the prior art, and one of ordinary skill in the art could have combined the elements as claimed by known methods, with the combination yielding predictable results to one of ordinary skill in the art, and furthermore, this is an application of a known technique to a known device to produce predictable results.

39. **Claim 9 is rejected** in the alternative under 35 U.S.C. 103(a) as being unpatentable over Grover, Ghassabian, Huang, and Berstis as applied to claim 7 above, and further in view of U.S. Patent No. 5,995,084 (Chan et al.).

40. Regarding claim 9, Chan teaches wherein each double-press must be completed within a predetermined period of time in order to select the secondary key-value or key-function (Claims 8, 17). Ghassabian teaches double-press, but not the explicit timing of the double press. Therefore, this is an application of a known technique to a known device to produce predictable results.

41. **Claim 11 is rejected** in the alternative under 35 U.S.C. 103(a) as being unpatentable over Grover, Ghassabian, Huang, and Berstis as applied to claim 7 above, and further in view of U.S. Patent Publication No. 2003/0197736 (Murphy).

42. Regarding claim 11, Murphy teaches wherein the secondary key-value corresponds to a capitalized conventional key-value (Claim 37). Murphy also teaches wherein press and hold and double press are different options for accessing a secondary value ([60]), so the teaching of Murphy regarding capital key values would also apply to the secondary values achieved by double pressing as taught by Ghassabian. Therefore, these elements were known in the prior art, and one of ordinary skill in the art could have combined the elements as claimed by known methods, with the combination yielding predictable results to one of ordinary skill in the art.

43. **Claim 21 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover as applied to claim 20 above, and further in view of U.S. Patent No. 7,111,248 (Mulvey et al.)

Mulvey teaches resetting information (Fig. 7). The suggestion to apply the teaching of Mulvey to that of Grover is that both deal with stored information. The motivation to apply the reset teaching is that occasionally one wishes to reset stored information to a new or earlier state.

44. **Claims 30-31 and 33 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover as applied to claim 5 above, and further in view of U.S. Patent No. 2003/0195904 (Chestnut et al.)

45. Regarding claim 30, Chestnut teaches where synchronization of data dictionaries between two or more personal computers can be accomplished by wired connectivity ([66]). The suggestion to apply this teaching to Grover is that Grover is a computer with a data dictionary. The motivation to apply Chestnut to Grover is to supplement use of one personal computer device with a second, perhaps desktop device.

46. Regarding claim 31, Chestnut teaches wherein synchronization of data dictionaries between two or more personal computers can be accomplished by means of downloading from a common database ([66]). The suggestion to apply this teaching to Grover is that Grover is a computer with a data dictionary. The motivation to apply Chestnut to Grover is to supplement use of one personal computer device with a second, perhaps desktop device.

47. Regarding claim 33, Chestnut teaches wherein the population of the, or each, data dictionary with data and its corresponding qualitative and/or quantitative information may be accelerated by uploading onto the data storage means data strings resident on a personal computer or a remotely connected device ([66]). The suggestion

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to apply this teaching to Grover is that Grover is a computer with a data dictionary. The motivation to apply Chestnut to Grover is to supplement use of one personal computer device with a second, perhaps desktop device.

48. **Claim 32 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover as applied to claim 5 above, and further in view of U.S. Patent No. 3,648,245 (Dodds et al.).

49. Regarding claim 32, Dodds teaches manual entry of data (col. 13, lines 1-5). The suggestion to apply the teaching of Dodds to that of Grover is provided by the fact that Grover requires that data be entered somehow to populate the dictionary. The motivation to apply the teaching of Dodds to that of Grover is that a user may simply wish to enter data directly, perhaps a single word.

50. **Claim 34 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Grover as applied to claim 5 above, and further in view of U.S. Patent Publication No. 2002/0186883 (Roman).

51. Regarding claim 34, Roman teaches an optical character recognition (OCR) scanning system utilizing a memory device, a registry, a scanning application, a processor, and a scanning device to scan the text of documents into memory (Abstract). The suggestion to apply the teaching of Roman to that of Grover is that the device of Grover requires entry of vocabulary data. The motivation to use the teaching of Roman is to avoid typing.

### ***Response to Arguments***

52. Applicant's arguments filed 8/23/2011 have been fully considered but they are not persuasive. The applicant has amended the claims and argues that Grover does not teach the new limitation "wherein the data storage means is defined by one or more data dictionaries each holding probability information relating to a given data string's historical usage, the probability information being based on statistical derivatives of language and user traits". But as indicated above, Grover does teach this limitation (col. 7 line 46-col. 8 line 43). The applicant argues that Grover does not teach determining probability information based on data usage, but Grover does teach this (col. 7 line 61-col. 8 line 4, col. 8 lines 31-43 (frequency of use is probability information)). This information is held in the data dictionary (col. 8 lines 24-35).

### ***Conclusion***

53. Applicant's amendments necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene W. Lee whose telephone number is (571)270-7148. The examiner can normally be reached on Monday-Friday, 9:30am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LunYi Lao can be reached on 571-272-7671. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GWL/

/LUN-YI LAO/

Supervisory Patent Examiner, Art Unit 2629